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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,189

07/14/2006

Young-Gyu Rho

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WASHINGTON, DC 20006-1004

EXAMINER

SAVANI, AVINASH A

ART UNIT

PAPER NUMBER

3749

NOTIFICATION DATE

DELIVERY MODE

03/03/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/586,189	<b>Applicant(s)</b> RHO, YOUNG-GYU	
	<b>Examiner</b> AVINASH SAVANI	<b>Art Unit</b> 3749	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 July 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/14/2006</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 and 2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitation of “for increasing vapor pressure” is indefinite because it raises the question of how as a vapor pressure increased without the presence of any liquid? Therefore, the limitation will be interpreted such that the valve will open or close depending on a detected vapor pressure via a heat exchanging element.

3. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitation of “having both sides protruded toward the outside of the boiler” is unclear because it raises the question whether or not the sides extend beyond the outside. Therefore the claim will be interpreted in that the sides of the combustion chamber may or may not extend so that a width dimension of the boiler is less than that of the combustion chamber.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wasson [2784913].

7. With respect to claim 1, Wasson discloses a gas control valve comprising: a hollow valve case (1) including a gas intake port (6) formed at the upper side thereof, a gas discharge port (32) formed at the side thereof [see FIG 1]; a valve piston (35) with which an O-ring for sealing the space between the valve case and the valve piston is coupled [col 3, line 43-46]; a compression spring (33) inserted into the space between the valve piston and the protruded intermediate side to apply a force to push the valve piston; and a heat exchanger (36), installed on the bottom of the valve case, for increasing vapor pressure to apply a force to the valve piston to be pushed upward such that the gas control valve automatically adjusts the quantity of gas in response to the heat transferred to the heat exchanger [col 3, line 66-75, col 4, line 1-34]. Wasson does not disclose an upper inclined end having a narrow upper side and a wide lower side, and a protruded intermediate side or a valve piston that is inserted into the valve case to move upward and downward or the force pushing down. These features are believed to

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be a matter of design choice since no advantage is given. Therefore it would have been obvious to a person of ordinary skill in the art at the time of the invention to provide a valve arranged as claimed because it would be within their knowledge of the possible designs to facilitate a working valve, showing a matter of design rather than criticality.

8. With respect to claim 2, Wasson discloses a gas blocking valve comprising: a hollow valve case (1) including a gas discharge port (32) formed at the side thereof, a gas intake port (6) a valve piston (35), inserted into the valve case, with which an O-ring for sealing the space between the valve case and the valve piston is coupled [col 3, line 43-46]; a compression spring (33) inserted into the space between the valve piston and the protruded intermediate side to apply a force to push the valve piston down; and a heat exchanger (36), installed on the bottom of the valve case, for increasing vapor pressure to apply a force to the valve piston to be pushed upward such that the gas blocking valve automatically blocks gas in response to the heat transferred to the heat exchanger [col 3, line 66-75. col 4, line 1-34], however does not disclose the intake formed below the gas discharge port, and a protruded intermediate side or a piston to move upward and downward. These features are believed to be a matter of design choice since no advantage is given. Therefore it would have been obvious to a person of ordinary skill in the art at the time of the invention to provide a valve arranged as claimed because it would be within their knowledge of the possible designs to facilitate a working valve, showing a matter of design rather than criticality.

9. Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iritani [5839655], further in view of Wasson ['913].

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10. With respect to claim 3, Iritani discloses an automatic warm water circulator using gas valves, comprising: a circulation cycle formed such that a reservoir (1) is connected to a boiler (6) by a supply pipe, the boiler is connected to a heat exchanger (2) by a discharge pipe, and the reservoir is connected to the heat exchanger by a circulation pipe (3, 4) [see FIG 1]; a hollow combustion chamber (7) provided in the lower side of the boiler and having both sides protruded toward the outside of the boiler [see USC 112, 2<sup>nd</sup> above regarding claim 3]; however does not disclose the gas supply or the valves as claimed. The ignition device for burning the gas to heat the water in the boiler is an inherently present element since a combustion chamber is provided and ignition devices are notoriously known to be paired with any combustion device. Wasson teaches a similar device a gas supply for supplying the gas to the inside of the combustion chamber; and a supply valve and a discharge valve respectively provided in the supply pipe and the discharge pipe and automatically opened and closed in response to the inner pressure of the boiler [see FIG 1, col 3, line 66-75. col 4, line 1-34]. In view of Wasson, there is a gas supply device and valves as claimed. It would have been obvious to a person of ordinary skill in the art at the time of the invention to control the gas via the valves regarding the inner pressure of the boiler because the technique was known in the art, yielding the predictable result of providing a temperature of the water to be supplied that does not exceed unsafe levels.

11. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iritani ['655], in view of Wasson ['913], further in view of Sebastiani [5937796]

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12. With respect to claim 4, Iritani discloses the automatic warm water circulator using gas valves as set forth in claim 3, however does not disclose the gas supply or ignition device as further claimed.

13. With respect to claim 5, Iritani discloses the automatic warm water circulator using gas valves as set forth in claim 4, however does not disclose the gas blocking valve as further claimed.

14. With respect to claim 6, Iritani discloses the automatic warm water circulator using gas valves as set forth in claim 3, however does not disclose the combustion chamber as further claimed.

15. With respect to claim 7, Iritani discloses the automatic warm water circulator using gas valves as set forth in claim 4, however does not disclose the pilot igniter as further claimed.

16. With regards to claims 4-7, Iritani discloses the automatic warm water circulator however, Sebastiani teaches a combustion chamber wherein the gas supply and ignition device comprises: a main nozzle (34) provided in the combustion chamber and connected to a gas container by a main gas pipe (37) to eject the supplied gas; a pilot igniter (25) for igniting the gas ejected from the main nozzle; and a gas control valve (40), provided in the main gas pipe, for automatically controlling the quantity of the gas to be supplied to the main nozzle according to the temperature of the boiler [see FIG 2, col 5, line 7-20]. Wasson teaches a gas blocking valve, installed in the main gas pipe to be connected to the gas control valve in serial, for automatically blocking the gas to be supplied to the main nozzle according to the temperature of the boiler [col 3, line 66-75.

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col 4, line 1-34]. Sebastiani further teaches the combustion chamber includes: protruded ends formed in the upper outer circumference thereof; and air intake ports (50), coupled with both end of the combustion chamber, through which air necessary for combustion of the gas is introduced [see FIG 3, col 4, line 49-65] and the pilot igniter comprises: a pilot nozzle connected to a pilot supply pipe branched from the main gas pipe and installed near to the main nozzle, and including a pilot lighter connected to a pilot switch such that the pilot nozzle ignites the gas ejected from the main nozzle while the pilot nozzle flames [col 5, line 46-62]. In view of Sebastiani, the combustion chamber of a boiler has a gas supply nozzle as claimed along with an ignition device and air intake slots as further claimed. It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide a boiler with the combustion chamber and components as claimed because the option was known in the art, yielding the predictable result of having a warm water system that is highly precise in the temperature output.

17. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iritani ['655], in view of Wasson ['913], further in view of Kirk [2695753].

18. With respect to claim 8, Iritani discloses the automatic warm water circulator using gas valves as set forth in claim 3, however does not disclose the reservoir as further claimed.

19. With respect to claim 9, Iritani discloses the automatic warm water circulator using gas valves as set forth in claim 8, however does not disclose the air pack as further claimed.



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20. With respect to claim 10, Iritani discloses the automatic warm water circulator using gas valves as set forth in claim 8, however does not disclose the air pack.

21. With regard to claims 8-10, Iritani discloses the automatic warm water circulator, however Kirk teaches a similar device wherein the reservoir comprises: an opening for opening a part of the upper side of the reservoir; an opening and closing device provided at the opening and having a ventilation hole; and an air pack, installed in the opening and closing device, for sealing the opening and being contracted and expanded due to the pressure difference between the inner pressure of the reservoir and an external pressure by the opening [see FIGs 3 and 4, col 2, line 24-38], wherein the air pack is provided in the upper or lower surface of the opening and closing device [see FIG 1], and wherein the air pack accommodates water [col 1, line 44-75]. In view of Kirk, the water reservoir is arranged to react to differing pressure. It would have been obvious to a person of ordinary skill in the art at the time of the invention to have a water reservoir as claimed because the contract and expanding capabilities of the water reservoir were known to allow for greater control of water flow, yielding the predictable result of providing a water supply based on demand.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AVINASH SAVANI whose telephone number is (571)270-3762. The examiner can normally be reached on Monday- Friday, alternate Fridays off, 7:30-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven McAllister can be reached on 571-272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Avinash Savani/  
Examiner, Art Unit 3749

/Steven B. McAllister/  
Supervisory Patent Examiner, Art Unit 3749

/A. S./  
2/22/2010